

# INTERNATIONAL SEARCH REPORT

International Application No.

PC1 2004/003932

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K9/12 A61K9/14 A61K31/198 A61K31/727 A61P11/12

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61P A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
| X          | <p>WO 01/15672 A (KING MALCOLM ; UNIV ALBERTA (CA)) 8 March 2001 (2001-03-08)<br/> cited in the application<br/> page 14; example 2<br/> page 20; figure 5<br/> figure 5</p> <p>-----<br/> -/--</p> | 1-29                  |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

5 November 2004

Date of mailing of the international search report

18. 04. 2005

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## INTERNATIONAL SEARCH REPORT

International Application No

PC

12004/003932

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
| X          | WO 03/068188 A (CARROLL MARY PATRICIA ; SHUTE JANIS KAY (GB); CONWAY JOY HELEN (GB); H) 21 August 2003 (2003-08-21)<br>page 1, line 28 - page 2, line 16<br>page 5, line 29 - line 30<br>page 9, line 25 - line 31<br>page 15, line 14 - line 18<br>page 16, line 22 - line 25<br>page 24, line 26 - line 31<br>page 47, line 1 - line 13<br>page 52, line 15 - line 16<br>claims | 1-9,13,<br>15-29      |
| X          | WO 03/068187 A (CARROLL MARY PATRICIA ; SHUTE JANIS KAY (GB); CONWAY JOY HELEN (GB); H) 21 August 2003 (2003-08-21)<br>page 17, line 18 - line 24<br>page 25, line 20 - page 26, line 2<br>page 30, line 8 - line 23<br>page 35, line 4 - line 16   | 1-9,13,<br>15-29      |
| X          | WO 03/068254 A (CARROLL MARY PATRICIA ; SHUTE JANIS KAY (GB); CONWAY JOY HELEN (GB); H) 21 August 2003 (2003-08-21)<br>page 3, line 29 - line 31<br>page 16, line 1 - line 12<br>page 51; example 5   | 1-9,13,<br>15-29      |
| X          | WO 99/06025 A (BAKER NORTON PHARMA)<br>11 February 1999 (1999-02-11)<br>page 18, line 23 - page 19<br>page 21, line 20 - page 23, line 13   | 1-9,<br>15-40         |
| X          | WO 94/02107 A (KENNEDY THOMAS P)<br>3 February 1994 (1994-02-03)<br>page 14; example 6<br>page 16, line 9 - line 12   | 1-8,<br>15-29         |
| X          | WO 98/04133 A (CAVALIER PHARMACEUTICALS)<br>5 February 1998 (1998-02-05)<br>the whole document<br>page 14, line 1 - line 5<br>page 32; example 4  | 1-8,<br>15-29         |
| X          | LEE M M ET AL: "Effect of low molecular weight (MW) heparin on the elasticity of dog mucus"<br>CLINICAL AND INVESTIGATIVE MEDICINE, no. SUPPL., 1998, page S102, XP009039322<br>& ANNUAL MEETING OF THE CANADIAN SOCIETY FOR CLINICAL INVESTIGATION, THE ROYAL COLLEGE OF PHYSICIANS A; TORONTO, ONTARIO, CANADA; SEPTEMBER 24-27, 1998<br>ISSN: 0147-958X<br>the whole document  | 1-9,<br>15-29         |

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| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT |   |                       |
|--|---|-----------------------|
| Category *   | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
| X  | <p>LEE MM, H. GARRETT, E. SUDO, W. A. BOYD,<br/>AND M. KING: "Mucociliary clearance<br/>increase due to low molecular weight<br/>heparin".<br/>PEDIATR. PULMONOL, no. s17, 1998, page<br/>386, XP000903996<br/>the whole document<br/>-----</p> | <p>1-9,<br/>15-29</p> |

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB2004/003932

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  

Although claim 29 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  

1-4, 15-29 (all in part), 5-9

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International Application No. PCT/ GB2004/ 003932

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4, 15-29 (all in part), 5-9

use of glycosaminoglycans in the treatment of a pulmonary disease  
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2. claims: 1-4 , 15-29 (all in part), 10,11

use of a monosaccharide, a disaccharide or an oligosaccharide in the treatment of a pulmonary disease  
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3. claims: 1-4, 15-29 (all in part), 12, 14

use of a composition comprising an amino acid in the treatment of a pulmonary disease  
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4. claims: 1-4, 15-29 (all in part), 13

use of a composition comprising rhDNase, gelsolin or thymosin in the treatment of a pulmonary disease  
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5. claims: 30-34, 40 in part

process for the production of particles suitable for use in the treatment of a pulmonary disease comprising spray drying  
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6. claims: 35-39, 40 (in part)

process for the production of particles suitable for use in the treatment of a pulmonary disease comprising jet milling  
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PC 2004/003932

| Patent document cited in search report |   | Publication date | Patent family member(s) | Publication date |
|--|---|------------------|-------------------------|------------------|
| WO 0115672                             | A | 08-03-2001       | AU 6679300 A            | 26-03-2001       |
|  |   |                  | WO 0115672 A2           | 08-03-2001       |
|  |   |                  | CA 2382259 A1           | 08-03-2001       |
|  |   |                  | EP 1212047 A2           | 12-06-2002       |
|  |   |                  | US 2004224922 A1        | 11-11-2004       |
| WO 03068188                            | A | 21-08-2003       | AU 2003205898 A1        | 04-09-2003       |
|  |   |                  | AU 2003207317 A1        | 04-09-2003       |
|  |   |                  | AU 2003245794 A1        | 04-09-2003       |
|  |   |                  | EP 1513502 A1           | 16-03-2005       |
|  |   |                  | EP 1511466 A1           | 09-03-2005       |
|  |   |                  | WO 03068187 A1          | 21-08-2003       |
|  |   |                  | WO 03068254 A1          | 21-08-2003       |
|  |   |                  | WO 03068188 A1          | 21-08-2003       |
| WO 03068187                            | A | 21-08-2003       | AU 2003205898 A1        | 04-09-2003       |
|  |   |                  | AU 2003207317 A1        | 04-09-2003       |
|  |   |                  | AU 2003245794 A1        | 04-09-2003       |
|  |   |                  | EP 1513502 A1           | 16-03-2005       |
|  |   |                  | EP 1511466 A1           | 09-03-2005       |
|  |   |                  | WO 03068187 A1          | 21-08-2003       |
|  |   |                  | WO 03068254 A1          | 21-08-2003       |
|  |   |                  | WO 03068188 A1          | 21-08-2003       |
| WO 03068254                            | A | 21-08-2003       | AU 2003205898 A1        | 04-09-2003       |
|  |   |                  | AU 2003207317 A1        | 04-09-2003       |
|  |   |                  | AU 2003245794 A1        | 04-09-2003       |
|  |   |                  | EP 1513502 A1           | 16-03-2005       |
|  |   |                  | EP 1511466 A1           | 09-03-2005       |
|  |   |                  | WO 03068187 A1          | 21-08-2003       |
|  |   |                  | WO 03068254 A1          | 21-08-2003       |
|  |   |                  | WO 03068188 A1          | 21-08-2003       |
| WO 9906025                             | A | 11-02-1999       | US 5980865 A            | 09-11-1999       |
|  |   |                  | AU 8684698 A            | 22-02-1999       |
|  |   |                  | BR 9811823 A            | 15-08-2000       |
|  |   |                  | CA 2298445 A1           | 11-02-1999       |
|  |   |                  | CN 1269715 A ,C         | 11-10-2000       |
|  |   |                  | EP 1003479 A1           | 31-05-2000       |
|  |   |                  | HK 1030370 A1           | 11-04-2003       |
|  |   |                  | HU 0003013 A2           | 29-01-2001       |
|  |   |                  | JP 2001511439 T         | 14-08-2001       |
|  |   |                  | NO 20000558 A           | 14-03-2000       |
|  |   |                  | NZ 502498 A             | 31-05-2002       |
|  |   |                  | PL 338551 A1            | 06-11-2000       |
|  |   |                  | RU 2209624 C2           | 10-08-2003       |
|  |   |                  | SK 1172000 A3           | 12-03-2001       |
|  |   |                  | TW 585771 B             | 01-05-2004       |
|  |   |                  | WO 9906025 A1           | 11-02-1999       |
|  |   |                  | US 6193957 B1           | 27-02-2001       |
|  |   |                  | ZA 9806890 A            | 28-01-1999       |
| WO 9402107                             | A | 03-02-1994       | AT 213636 T             | 15-03-2002       |
|  |   |                  | AU 688272 B2            | 12-03-1998       |
|  |   |                  | AU 4782493 A            | 14-02-1994       |
|  |   |                  | CA 2140890 A1           | 03-02-1994       |
|  |   |                  | DE 69331633 D1          | 04-04-2002       |
|  |   |                  | DE 69331633 T2          | 31-10-2002       |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PC 82004/003932

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|---|---------------------|----------------------------|---------------------|
| WO 9402107 A                              |                     | DK 651645 T3               | 10-06-2002          |
|   |                     | EP 1164145 A2              | 19-12-2001          |
|   |                     | EP 0651645 A1              | 10-05-1995          |
|   |                     | ES 2173893 T3              | 01-11-2002          |
|   |                     | WO 9402107 A2              | 03-02-1994          |
|   |                     | US 5668118 A               | 16-09-1997          |
|   |                     | US 6077683 A               | 20-06-2000          |
|   |                     | US 5707974 A               | 13-01-1998          |
|   |                     | US 5912237 A               | 15-06-1999          |
| -----                                     |                     |                            |                     |
| WO 9804133 A                              | 05-02-1998          | AT 280496 T                | 15-11-2004          |
|   |                     | AU 727352 B2               | 14-12-2000          |
|   |                     | AU 3729997 A               | 20-02-1998          |
|   |                     | CA 2261872 A1              | 05-02-1998          |
|   |                     | DE 69731386 D1             | 02-12-2004          |
|   |                     | EP 0918461 A1              | 02-06-1999          |
|   |                     | JP 2001506673 T            | 22-05-2001          |
|   |                     | WO 9804133 A1              | 05-02-1998          |
|   |                     | US 5990097 A               | 23-11-1999          |
| -----                                     |                     |                            |                     |